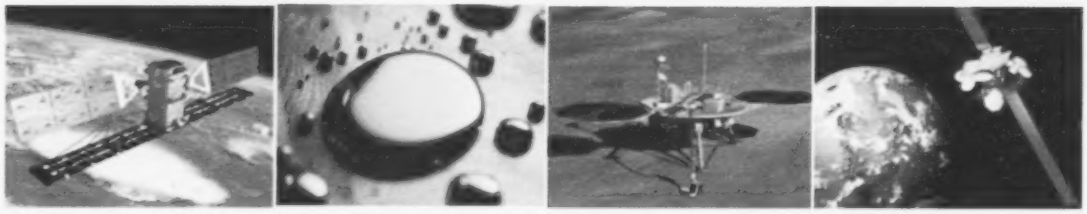
Agence spatiale canadienne | Canadian Space Agency

Canada

THE CANADIAN SPACE AGENCY

2013-14 Estimates

REPORT ON PLANS AND PRIORITIES



Minister of Industry and
Minister of State (Agriculture)

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MINISTER'S MESSAGE

In response to the continuing challenges facing the global economy, our government is determined to keep Canada strong and prosperous by creating the right conditions for businesses to invest in innovation, create jobs and grow our economy.

As Minister of Industry, I am pleased that the Industry Portfolio continues to play a key role in promoting innovation, improving Canada's marketplace policies, and efficiently managing programs and services. In doing so, we are advancing Canada's international position by supporting business growth, research and development, and targeted investment.

In refreshing the science and technology strategy and its priorities, we will strengthen federal support for business innovation and continue to build Canada's knowledge-based economy.

Government of Canada departments and agencies are increasingly using space data and applications to deliver their operational mandates, whether to support safety, sovereignty and security or to carry out surveillance of our land mass, especially the Arctic and our coasts. The world-class RADARSAT Constellation Mission will keep Canada at the forefront of the design and operation of radar satellites. Canada's continued participation in the International Space Station (ISS) will be capped by an historic milestone for our nation when astronaut Chris Hadfield completes a long-duration mission as the first Canadian commander of the ISS.

In fulfilling its mandate, the Industry Portfolio will prudently manage its financial and human resources and will play its part in the government's efforts to return to fiscal balance.

This year's Report on Plans and Priorities for the Canadian Space Agency articulates our approach to modernizing the Canadian marketplace, boosting innovation, and helping drive the competitiveness of Canadian businesses and communities. On behalf of the Department and Portfolio, I look forward to working with my Cabinet and parliamentary colleagues, as well as with the private sector and other levels of government, to accomplish these objectives.

The Honourable Christian Paradis
Minister of Industry and
Minister of State (Agriculture)

SECTION 1: OVERVIEW

1.1 RAISON D'ÊTRE AND RESPONSIBILITIES

The mandate of the Canadian Space Agency (CSA) is *"to promote the peaceful use and development of space, to advance the knowledge of space through science and to ensure that space science and technology provide social and economic benefits for Canadians"*.

The CSA is carrying its mandate in collaboration with Canadian industry, academia, Government of Canada (GoC) organizations, and other international space agencies or organizations.

CSA in brief in 2013-14

President: Steve MacLean

Minister of Industry:
The Honourable Christian Paradis

Budget: $488.7 million

Headquarters:
Saint-Hubert, Quebec

Employees: 664 FTEs

The founding legislation voted in 1990 attributed four main functions to the CSA:

- Assisting the Minister in the coordination of the space policies and programs;
- Planning and implementing programs and projects related to scientific or industrial space research and development, and application of space technology;
- Promoting the transfer and diffusion of space technology to and throughout Canadian industry; and,
- Encouraging commercial exploitation of space capabilities, technology, facilities and systems.

To learn more about the founding legislation and mandate of the CSA, go to: http://www.asc-csa.gc.ca/eng/about/mission.asp

Organizational and Governance Structure

The Canadian Space Agency was established in 1989. Approximately 90% of its employees are working at the headquarters located at the John H. Chapman Space Centre, in St-Hubert, Quebec. The remaining personnel serve the Agency at the Government Liaison Office and the David Florida Laboratory in Ottawa, or in Houston, Washington or Paris.

Reporting to the Minister of Industry, the President is the CSA's Chief Executive Officer and, as the principal advisor on space-related matters, he ensures that the Minister is in a position to take and direct all actions required to fulfil the CSA's mandate and mission. The President provides strategic directions and day-to-day leadership to the CSA for public resource allocation, management and stewardship.

Chaired by the President, the Executive Committee is the decision-making body where the strategic orientations, program priorities, major investments as well as the selection of projects and their continuation are approved. The members of the Executive Committee

are the Chief Financial Officer, four Directors General (Space Utilization, Space Exploration, Space Science and Technology, Corporate Services/Chief Human Resources Officer, and the Executive Director of Communications, Policy, External and Government Relations.

The President is supported by the Audit committee which provides objective advice and recommendations regarding the sufficiency, quality and results of assurance on the adequacy and functioning of the CSA's risk management, control and governance frameworks, accountability processes, and auditing systems.

At the strategic level, major space related issues are brought to the Deputy Minister ad-hoc Science and Technology Committee for discussions between government departments who have a stake in space services needed to support their mandate. These important consultations help the CSA determine the governmental needs and priorities related to space. A Deputy Minister Governance Committee chaired by the Deputy Minister of Industry Canada and regrouping those departments who participate in the RADARSAT Constellation Mission, provides guidance on the management of the construction and early operations phases of the project.

The recently published Report on Aerospace and Space review (*Reaching Higher: Canada's Interests and Future in Space*) will be examined by governmental authorities in 2013-2014. Governmental decisions on the report recommendations will be instrumental in determining how future space program and project priorities will be established and managed.

Renewed Investment Governance Process

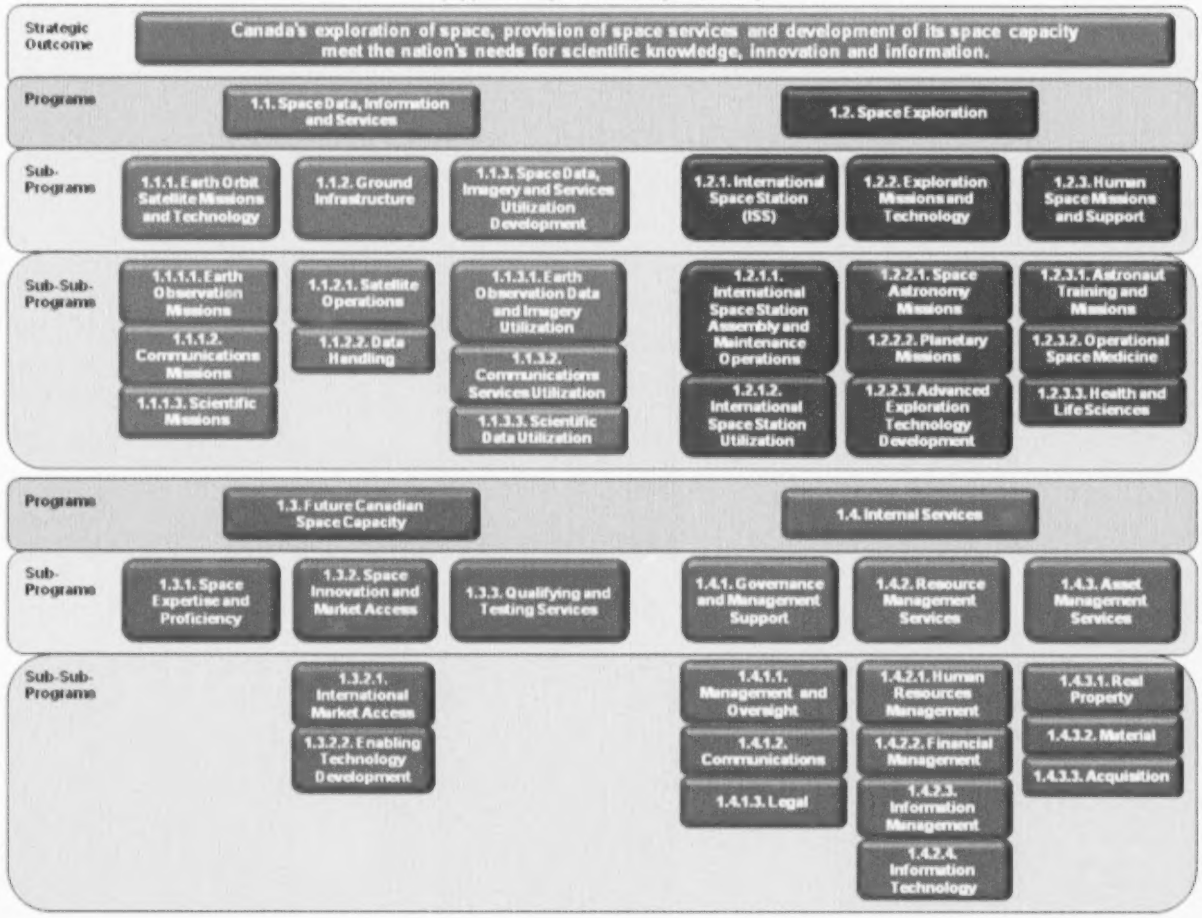
As part of an ongoing review of its governance processes, the CSA has approved a new Policy on investment planning to ensure that investments in assets and acquired services, new or existing, clearly support Government priorities and program outcomes, while taking into account risk and broader social and economic benefits. This policy guides the production and update of the CSA five-year Investment Plan in compliance with the Treasury Board Secretariat (TBS) *Policy on Investment Planning – Assets and Acquired Services*. New guidelines on the development of investment business cases and the annual review of CSA's investment portfolio will supplement this policy in the fiscal year 2013-2014.

Project Approval and Development Process

Most activities undertaken by the CSA are project-driven. The CSA has approved and put in place a newly updated Project Management Policy, which governs how CSA managers plan, approve and develop projects. It enables the CSA to align its project management practices with Treasury Board (TB) policies and with those of its major international partners, easing communication, integration and tracking. The CSA will implement by the end of 2014 a new Project Management Methodology derived from this updated policy which will overhaul the management and control processes already in place.

1.2 STRATEGIC OUTCOME AND PROGRAM ALIGNMENT ARCHITECTURE

Canadian Space Agency's 2013-2014 Program Alignment Architecture (PAA)
(Approved by TBS on July 12, 2012)


Strategic Outcome
Canada's exploration of space, provision of space services and development of its space capacity meet the nation's needs for scientific knowledge, innovation and information.
Programs
1.1. Space Data, Information and Services
1.2. Space Exploration
Sub-Programs
1.1.1. Earth Orbit Satellite Missions and Technology
1.1.2. Ground Infrastructure
1.1.3. Space Data, Imagery and Services Utilization Development
1.2.1. International Space Station (ISS)
1.2.2. Exploration Missions and Technology
1.2.3. Human Space Missions and Support
Sub-Sub-Programs
1.1.1.1. Earth Observation Missions
1.1.1.2. Communications Missions
1.1.1.3. Scientific Missions
1.1.2.1. Satellite Operations
1.1.2.2. Data Handling
1.1.3.1. Earth Observation Data and Imagery Utilization
1.1.3.2. Communications Services Utilization
1.1.3.3. Scientific Data Utilization
1.2.1.1. International Space Station Assembly and Maintenance Operations
1.2.1.2. International Space Station Utilization
1.2.2.1. Space Astronomy Missions
1.2.2.2. Planetary Missions
1.2.2.3. Advanced Exploration Technology Development
1.2.3.1. Astronaut Training and Missions
1.2.3.2. Operational Space Medicine
1.2.3.3. Health and Life Sciences
Programs
1.3. Future Canadian Space Capacity
1.4. Internal Services
Sub-Programs
1.3.1. Space Expertise and Proficiency
1.3.2. Space Innovation and Market Access
1.3.3. Qualifying and Testing Services
1.4.1. Governance and Management Support
1.4.2. Resource Management Services
1.4.3. Asset Management Services
Sub-Sub-Programs
1.3.2.1. International Market Access
1.3.2.2. Enabling Technology Development
1.4.1.1. Management and Oversight
1.4.1.2. Communications
1.4.1.3. Legal
1.4.2.1. Human Resources Management
1.4.2.2. Financial Management
1.4.2.3. Information Management
1.4.2.4. Information Technology
1.4.3.1. Real Property
1.4.3.2. Material
1.4.3.3. Acquisition

Descriptions of Programs, Sub-Programs and Sub-Sub-Programs are in Section 2.

The full description of Programs, Sub-Programs, and Sub-Sub-Programs can be taken from the Main Estimates available online at: http://www.tbs-sct.gc.ca/est-pre/estime.asp.

1.3 ORGANIZATIONAL PRIORITIES

The CSA invests wisely to maintain its leadership in applying space to the ever-increasing challenges of the global knowledge-based economy. Over the past three years, the CSA has actively consulted with senior executives of Government of Canada (GoC) organizations, Canadian academia and industry, and heads of space agencies to update its strategic vision in order to effectively propel Canada's Space Program well into the future. This vision has been conceived for a country:

- where governments, academia, businesses and citizens have timely access to relevant, reliable and high-quality data, knowledge, information and services from a variety of space assets, both domestic and foreign;
- that takes advantage of its favourable northern location to become an international hub for space data reception;
- that uses the challenges of space exploration as a powerful driver for knowledge and innovation;
- that provides exciting business and job opportunities in leading-edge space science and technology sectors; and,
- that uses space to address its public policy objectives, global challenges and to take its place in the world.

All CSA programs contribute to a single strategic outcome: *Canada's exploration of space, provision of space services and development of its space capacity meet the nation's needs for scientific knowledge, innovation and information.*

Strategic guidance resulting from wide consultations has yielded the following priorities for each CSA Program.

Provide space data, information and services for Canadians

The CSA will develop and help the utilization of space-based solutions and research data to assist Government of Canada organizations. The space solutions will contribute to the delivery of growing or cost-effective programs and services related to key national priorities, such as sovereignty, defence, safety and security, resource management, environmental monitoring and the North.

Foster knowledge and innovation through space exploration

The CSA will support the development of valuable Canadian science, signature technologies and qualified astronauts to international space exploration endeavours. It will support the development of space technologies and knowledge with potential for terrestrial benefits mainly through the optimal utilization of the International Space Station (ISS) and the demonstration of advanced robotics technologies.

Sustain and enhance future Canadian space capacity

The CSA will attract, sustain and enhance the nation's critical mass of Canadian space specialists, will enhance know-how, and evolve space related facilities to preserve Canada's capability to deliver internationally renowned space assets for future missions, and secure Canada's strategic presence in space.

Program – Space Data, Information and Services

Contribution of the Program to the CSA Strategic Outcome

The contribution of this Program to the strategic outcome is expected to increase the use of space data, applications and information by government departments and agencies to better deliver their policy and programs and perform their operational responsibilities more effectively. This calls for a strong partnership between the CSA and Government of Canada (GoC) organizations.

Priorities	Type
# 1 Further the development of the RADARSAT Constellation Mission (RCM) in order to provide continuity and enhanced functionalities to the users of RADARSAT-1 and RADARSAT-2. Ground stations located in the Canadian Arctic are required to take full advantage of the RADARSAT Constellation Mission and to receive data from various Canadian and foreign satellites.	Ongoing
# 2 Develop and integrate small satellite advanced technology to provide fast and cost effective responses to government needs in specific areas such as safety and security, atmospheric monitoring, environment stewardship, water quality monitoring and precision farming.	New

Why these are priorities

These priorities address GoC organizations' needs for high quality space data, applications and services essential in the provision of service to Canadians. These space assets and ground infrastructure program support the Government's key priorities: the Arctic, defence, sovereignty, safety and security, resources and the environment, and help perform world-class science in and from space in those priority areas.

Plans for meeting these priorities

- Continue the implementation phase of the RADARSAT Constellation Mission project which includes multiple intermediary deliverables throughout its six year duration culminating with the launch of the three satellites during fiscal year 2018-2019. Complete the requirement definition and the planning of the northern ground station for timely implementation prior to RCM launch.
- The CSA will prepare a business case for the implementation of a micro and small satellite program aiming at the development of cost-efficient space-based services for operational, technology demonstration and scientific purposes.

Program – Space Exploration

Contribution of the Program to the CSA Strategic Outcome

The contribution of this Program to the strategic outcome is expected to generate advances in space exploration creating knowledge, technologies and expertise, as well as an increased exploitation of this knowledge and know-how both in space and on Earth.

Priorities	Type
#1 Canada will continue as an active partner and participant in the International Space Station (ISS), operating and upgrading Canadian robotic elements (Canadarm2 and Dextre), performing scientific experiments and technology demonstrations and having access to flight opportunities for Canadian astronauts.	Ongoing
#2 Foster the development of scientific instruments, advanced space robotics and other technologies capable of contributing to future international space exploration missions.	Ongoing

Why these are priorities

CSA's Space Exploration Program encompasses space astronomy, the ISS, human spaceflight, robotic exploration of the solar system, and advanced instruments and technologies development. These priorities will foster an optimal utilization of the Space Station for research in health sciences with high potential for terrestrial benefits; and will allow the demonstration of advanced robotics and laser imaging technologies to consolidate industry's expertise and competitiveness. It will enable Canada's participation in future exploration missions which are best suited to generate the desired scientific knowledge articulated in the program expected result. Finally, Canadian signature technologies and Canadian astronauts make space exploration a source of national pride and an inspiration for scientific and engineering careers.

Plans for meeting the priorities

- Maintain and upgrade the robotic system on the ISS to ensure a robust operational life until 2020, and negotiate with the National Aeronautics and Space Administration (NASA) the offsets for the Canadian Common System Operation Costs for using the ISS in a way that will position Canadian industry for the next steps in space exploration.
- Promote the use of the ISS for the development and in-orbit demonstration of Canadian science and technologies, and for Canadian astronauts.
- Using the Global Exploration Roadmap and CSA's own space exploration plans, implement Canadian participation in international missions in astronomy and planetary science and continue to position Canadian scientists and industry as strategic and cost efficient partners in upcoming missions.

Program – Future Canadian Space Capacity

Contribution of the Program to the CSA Strategic Outcome

The contribution of this Program to the strategic outcome is aligned with the maintenance of the critical mass of academic, industrial and business expertise needed to address future national needs and priorities in space, as well as an increased pace of discovery, and innovation.

Priorities	Type
# 1 Generate, maintain and improve the conditions that support the creation of Highly Qualified Personnel (HQP) in space and related fields in order to sustain and improve Canada's space capacity and capability.	Ongoing
# 2 Generate, maintain and improve the conditions that support innovation in space technologies that will meet future needs and priorities.	Ongoing

Why these are priorities

The Canadian Space Program continues to rely primarily on a critical mass of HQP in academia, industry and government. A key component for the success of the Space Program, therefore, is the mobilization, retention, sustainment and development of experts in the space fields. Creating favourable conditions for this to happen becomes essential.

Implementation of space missions relies on industrial as well as academic capabilities while economic benefits depend on innovation and on the commercial possibilities. It is therefore crucial to ensure that we develop the favourable conditions for innovation as well as foster national and international business opportunities.

Plans for meeting these priorities

- Develop and use of sub-orbital platforms (balloons, aircraft and sounding rockets) and small satellites to increase the pace of training and scientific discovery, and create cost-effective science opportunities.
- Develop new stratospheric balloon launch infrastructure in Canada to support the access to balloon flights to train scientists and engineers.
- Improve initiatives using sub-orbital platforms and very small satellites (nano satellites) to increase the pace of training and scientific discovery.
- Prepare future clusters of excellence facilitating knowledge and technology transfer through the promotion of closer links between universities and industry in priority areas.
- Explore greater coordination between the CSA and the Granting Councils to facilitate the collaboration between Canadian universities working in partnership with the space industry and the government to generate and develop future space expertise and capacity.
- Identify from the missions and programs roadmaps, the space technologies to be developed and continue to task industry and research organizations to advance these technologies in order to mitigate risks and contribute to the enhancement of Canadian capabilities.
- Conduct a pilot project that explores the viability of contribution funding component to the Space Technology Development activities.

Program– Internal Services

Contribution of the Program to the CSA Strategic Outcome

The contribution of this Program to the strategic outcome is expected to yield better management of programs and services in accordance with the Management Accountability Framework.

Priorities	Type
#1 Implement a new governance structure and strengthen corporate risk assessment and project management processes.	Ongoing
#2 Implement the Five-Year Investment Plan in accordance with Treasury Board Secretariat policies.	Ongoing

Why these are priorities

A renewed governance structure will ensure that stakeholders' priorities are taken into account as early as possible in the planning process and that investment decisions are based on an improved set of strategic considerations, including program performances, corporate risks and management capacity, all supported by strong business cases.

The CSA considers that a bolstered investment planning process will ensure that resources are allocated in accordance with government priorities and supports affordable, productive and financially sustainable delivery of programs and projects through solid management plans.

Plans for meeting the priorities

- Finalize the review of the CSA governance structure which defines the roles, responsibilities and relationships of government departments with a stake in the space sector, and provide a framework for the deployment and use of space assets with multiple roles.
- Implement the new CSA Policy on Investment Planning through the development and use of guidelines, processes and procedures to ensure that investments in assets and acquired services clearly support Government priorities and program outcomes, while taking into account risk and broader social and economic benefits.
- Implement the new Policy on the Management of Project through the development and use of a Project Management Methodology enhancing the management and control process already in place.
- Implement the CSA reorganization optimising business practices and focussing on key operational priorities both aimed at maximizing the proportion of the CSA budget invested in the space industry and academic capacity building.

1.4 RISK ANALYSIS

A Renewed Corporate Integrated Risk Management Process

In early 2013-2014, the CSA will have just completed the implementation of a new corporate integrated risk process, derived from the 2012 CSA Policy on Integrated Risk and will have updated its Corporate Risk Profile (CRP). Throughout 2013-2014, this new CRP will support the provision of information required for open, traceable and accountable decision-making as expected and assessed under the Management Accountability Framework (MAF).

The new process includes broad principles and definitions of corporate risks to be addressed distinctly from project management issues. It highlights the need to identify the propensity of corporate risks to preclude the achievement of programs expected results; to increase the use of lessons learned from past mitigation plans in support of decision-making; and, to clarify roles and responsibilities of all key personnel with respect to integrated risk management.

The new CRP will consider external factors that may affect the attainment of each of the Program Alignment Architecture (PAA) expected program outcome as well as internal factors that can preclude effective and efficient implementation of program activities.

Strategic Context of the Canadian Space Agency

Over the past fifty years, Canada has established a world-class reputation in areas of satellite communications, Earth observation, advanced space robotics, vision and optical systems, space science and exploration. Canada learned early on that it could leverage its technical and scientific expertise through opportunities with other countries, especially the United States and Europe, to gain global niche market advantage. This has become a hallmark of the Canadian Space Program.

Meanwhile, the global space sector has been transformed as governments and civil space agencies positioned space as a strategic asset. The post-war domination by a few "great space powers" has given way to emerging players and strategic alliances. While the United States continue to dominate the sector, countries like China, India, South Korea and Japan, to name just a few, have seen their space budgets increased significantly. As Canada continue to be regarded as a reliable partner that possesses unique technical and scientific capabilities and as a nation that contributes signature space technologies to the initiatives led by foreign space agencies, these new international developments offer important opportunities for cooperation at both the government and commercial levels. Thus, Canada strives to gain a foothold in these critical space markets, working closely with its stakeholders to position Canadian scientists and companies in civil and commercial space initiatives as well as to respond to national needs.

Risk Discussion

The implementation of the new CSA Policy on Integrated Risk provided an opportunity to identify the key risks the Agency faces while setting program priorities and making investment decisions. Below is a high-level summary of the risks which will be part of the new CSA Corporate Risk Profile.

While the chosen approach over the past decades to concentrate Canada's efforts in a few strategic space technologies has been successful, it has led to a highly concentrated industry. On the other hand, the growth of small companies continues to represent a challenge because of their limited resources to market adequately their products and services worldwide. Consequently, the Canadian space industry remains reliant on continued research and development investments to overcome its growth challenges.

In order to mitigate the risk of insufficient capacity needed to address future national needs and priorities related to space, the CSA will pursue the development of sub-orbital platforms to increase the pace of training and scientific discovery. The decision to invest in this specific Canadian human and knowledge advantage, as well as advancing space robotics and other technologies aims at maintaining Canada's competitive edge.

At the national level, space assets have been used increasingly to respond to national priorities. As depicted in the 2011-2012 Departmental Performance Report (DPR), many departments rely on space-based data to deliver their mandate and many others expect to do so in the near future. The rapidly evolving context, the various needs and the long-term timeframe to develop assets imply that difficult choices must be made. The diversity of missions and partnership opportunities to choose from is grand. In that context, there is a risk that gaps will occur between services provided and the services needed by the users. To mitigate that risk, the CSA will support the development of small satellite technology which will provide fast and cost effective responses to government needs while continuing the management and optimization of RADARSAT-1 and RADARSAT-2 data allocation. This approach will ensure that the needs for synthetic aperture radar data by operational government users are met in a sustainable way until the RADARSAT Constellation Mission is launched in 2018.

Finally, programmatic or technical difficulties associated with space missions represent another important source of risks. Typically, those risks lead to cost increases and schedule slippages. Additional challenges can appear due to the long-term duration of space missions, their international dimension, and their uniqueness based on very stringent space hardware quality control requirements. In order to mitigate those risks, the CSA will implement a new Policy on the Management of Project and a Project Management Methodology, thus enhancing the management and control process already in place.

1.5 PLANNING SUMMARY

CANADIAN SPACE AGENCY STRATEGIC OUTCOME

Canada's exploration of space, provision of space services and development of its space capacity meet the nation's needs for scientific knowledge, innovation and information.

Financial Resources (Planned Spending—$ in millions)

Total Budgetary Expenditures (Main Estimates) 2013–14	Planned Spending 2013–14	Planned Spending 2014–15	Planned Spending 2015–16
488.7	488.7	435.2	382.9

Human Resources (Full-Time Equivalents—FTEs)

2013–14	2014–15	2015–16
664	644	613

Note: Students are now included in the FTE calculation.

	TOTAL Budgetary Expenditures (Main Estimates)	Planned Spending		
	2013–14	2013–14	2014–15	2015–16
a) Budgetary Expenditures excluding RCM funding	310.0	310.0	268.7	276.3
b) RCM Source of funds from Fiscal Framework	*150.6*	*150.6*	*116.6*	*65.8*
c) RCM Source of funds from other GoC organizations (including AIS)	*28.1*	*28.1*	*49.9*	*40.8*
d) Sub-Total RCM Source of funds (b+ c)	*178.7*	*178.7*	*166.5*	*106.6*
e) RPP 2013-14 - Section 1.5 Total Budgetary Expenditures (a) + d))	**488.7**	**488.7**	**435.2**	**382.9**

1.5.1 Planning Summary Table for Strategic Outcome and Programs

Strategic Outcome: Canada's exploration of space, provision of space services and development of its space capacity meet the nation's needs for scientific knowledge, innovation and information.							
Programs	**($ in millions)**						**Alignment to Government of Canada Outcomes[1]**
	Actual Spending 2010–11	**Actual Spending 2011–12**	**Forecast Spending 2012–13**	**Planned Spending**			
				2013–14	**2014–15**	**2015–16**	
Space Data, Information and Services	105.8	137.3	137.9	288.8	238.1	166.6	Well-managed and efficient government operations
Space Exploration	138.9	146.3	104.1	95.4	91.5	112.8	An innovative and knowledge-based economy
Future Canadian Space Capacity	72.7	69.6	54.6	58.5	60.8	61.5	An innovative and knowledge-based economy
Sub –Total	317.4	353.2	296.6	442.7	390.5	340.9	

Note: Due to rounding, decimals may not add up to totals shown.

1.5.2 Planning Summary Table for Internal Services

Program	**($ in millions)**					
	Actual Spending 2010–11	**Actual Spending 2011–12**	**Forecast Spending 2012–13**	**Planned Spending**		
				2013–14	**2014–15**	**2015–16**
Internal Services	55.4	55.9	52.2	46.0	44.8	42.1
Sub –Total	55.4	55.9	52.2	46.0	44.8	42.1

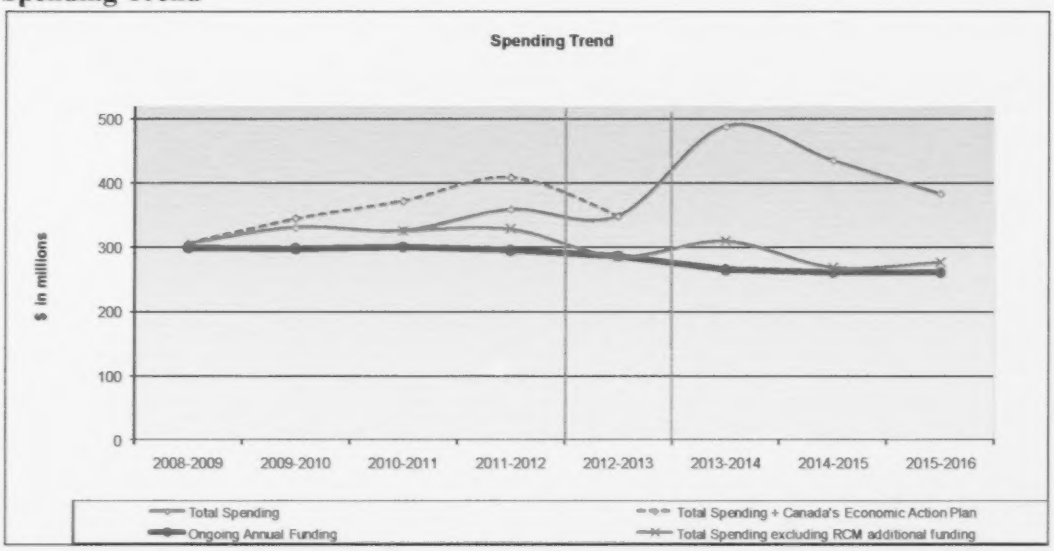
1.5.3 Planning Summary Total

Programs and Internal Services	**($ in millions)**					
	Actual Spending 2010–11	**Actual Spending 2011–12**	**Forecast Spending 2012–13**	**Planned Spending**		
				2013–14	**2014–15**	**2015–16**
Total	372.8	409.1	348.9	488.7	435.2	382.9

[1] Information on *Departmental Alignment to Government of Canada Outcomes* is available on the Secretariat's website at the following address: http://www.tbs-sct.gc.ca/ppg-cpr/frame-cadre-eng.aspx.

1.6 EXPENDITURE PROFILE

Spending Trend



The CSA's annual A-Base budget of $300 million was set in Budget 1999 but the difference in the spending trend shown above is mainly attributable to the following factors:

- The incremental funds for the RADARSAT Constellation Mission following the government decision to provide CSA with additional $111 million over five years (2005-2006 to 2009-2010) to work with the Canadian space industry on developing the next generation of advanced radar remote sensing satellites.

- In Budget 2009, Canada's Economic Action Plan (Action to Support Businesses and Communities) provided the Canadian Space Agency with $110 million over three years to develop terrestrial prototypes for space robotic vehicles, such as the Mars Lander and Lunar Rover, and for the further development of other technologies and space robotics. The Canadian Space Agency plays an important role by working with the private sector to support advanced research, development and prototyping for new space-based technologies.

- In Budget 2010, CSA was granted a sum of $397 million over five years (2010-2011 to 2014-2015) to develop the RADARSAT Constellation Mission (RCM). Furthermore, CSA has received additional funding of $374 million over six years (2013-2014 to 2018-2019) and of this amount, $234.2 million comes from transfers from GoC organizations.

- On August 4, 2011, an Order in Council (OIC) established Shared Services Canada (SSC) as part of the Public Works and Government Services Canada (PWGSC) portfolio to streamline and reduce duplication in the government's Information Technology (IT) services. SSC will consolidate the resources and

personnel currently supporting email, data centers and networks, and associated internal services. In 2011-2012, unexpended authorities related to functions transferred to SSC corresponded to $3.5 million. Starting in 2012-2013, CSA transferred $7.2 million of its A-Base budget to SSC.

- CSA's contribution to Budget 2012 Spending Review is $7.9 million for fiscal year 2012-2013, $24.7 million for fiscal year 2013-2014 and $29.5 million for fiscal year 2014-2015 and ongoing.
- The cumulative impact of the reprofiling of funds associated with the sound management of high-risk projects and programs (e.g., high technology risks, long term development cycle, uncertainties with work schedules, implementation delays).

1.7 ESTIMATES BY VOTE

For more information on our organizational votes and/or statutory expenditures, please see the 2013-2014 Main Estimates publication. An electronic version of the Main Estimates is available at http://www.tbs-sct.gc.ca/est-pre/index-eng.asp.

SECTION 2: ANALYSIS OF PROGRAMS BY STRATEGIC OUTCOME

2.1 CANADIAN SPACE AGENCY STRATEGIC OUTCOME

All CSA Programs contribute to a single strategic outcome: *Canada's exploration of space, provision of space services and development of its space capacity meet the nation's needs for scientific knowledge, innovation and information.*

2.2 PROGRAMS

Space Data, Information and Services (SDIS)

Description: This Program includes the provision of space-based solutions (data, information and services) and the progression of their utilization. It also serves to install and run ground infrastructure that processes the data and operates satellites. This Program utilizes space-based solutions to assist Government of Canada (GoC) organizations in delivering growing, diversified or cost-effective programs and services within their mandate, which is related to key national priorities, such as sovereignty, defence, safety and security, resource management, environmental monitoring and the North. It also provides academia with data required to perform its own research. The services delivered through this Program are rendered, and the data and information are generated and processed, with the participation of the Canadian space industry, academia, GoC organizations, national and international organizations, such as: foreign space agencies, not-for-profit organizations, as well as provincial and municipal governments. This collaborative effort is formalized under national and international partnership agreements, contracts, grants or contributions.

Financial Resources ($ in millions)

Total Budgetary Expenditures (Main Estimates) 2013–14	Planned Spending 2013–14	Planned Spending 2014–15	Planned Spending 2015–16
288.8	288.8	238.1	166.6

Human Resources (Full-Time Equivalents—FTEs)

2013–14	2014–15	2015–16
102	103	103

Note: Students are now included in the FTE calculation.

1.1 SDIS Program Expected Result	Performance Indicator	Target
R-1. GoC organizations offer more diversified or cost-effective programs and services due to their utilization of space-based solutions.	Ind-1. Number of new GoC's programs offering more diversified or efficient services.	T-1. Benchmark to be established.

SUMMARY OF PLANNING HIGHLIGHTS FOR SPACE DATA, INFORMATION AND SERVICES

- Continue the implementation phase of the RADARSAT Constellation Mission (RCM) initiated at the end of fiscal year 2012-2013. This phase will include multiple intermediary deliverables throughout its duration, which is planned to last approximately six years with a simultaneous launch of the three satellites during fiscal year 2018-2019. While ensuring continuity of space data from its predecessors RADARSAT-1 and RADARSAT-2 for many government departments, the RCM will enhance Canada's ability to use space-based solutions in support of Canada's sovereignty, defence, safety and security, resource management, environmental monitoring, particularly in the Arctic.
- The CSA will keep managing and optimizing the RADARSAT-2 data allocation to ensure that the needs for synthetic aperture radar data by operational government users are met in a sustainable way. Out of the $445 million worth of prepaid RADARSAT-2 data, the Canadian government had consumed $163 million by October 2012.
- The CSA will continue Earth Observation (EO) satellite data applications development in response to the growth of needs or capabilities within Government of Canada and the service industry. With 20 ongoing projects, including 10 to develop applications to further optimize the utilization of RADARSAT data, the CSA will continue its collaboration and support to other government departments in the development of new applications using EO data.
- The CSA will continue to take advantage of Canada's favourable northern location. A modern, integrated and coordinated national system of ground infrastructure is required to operate the Canadian space assets and for the timely capture of space data from domestic or foreign satellites. Government of Canada organizations are partnering to ensure ground station coverage of the Canadian territory, especially over the Arctic where gaps are still found.
- The CSA will finalize the manufacturing, integration and testing of the M3MSat satellite (Maritime Monitoring and Messaging Microsatellite) to be launched in 2013. This joint CSA–Department of National Defense micro-satellite project will demonstrate and further develop a multi-mission micro-satellite bus capability and allow optimization of the Automated Identification System (AIS) payload for maritime traffic identification from space.

- The CSA will see the launch of CASSIOPE (Cascade Demonstrator, Smallsat Bus and Ionospheric Polar Explorer), a mission that will demonstrate both the small satellite bus capability and the future space-based digital courier system CASCADE (Canadian Advanced Satellite Communication Applications Demonstration), and bring scientific returns with the ePOP (Enhanced Polar Outflow Probe) instrument that will help understand particle exchange and energy coupling processes between the Earth's atmosphere and the space environment.
- The CSA will continue to develop promising mission concepts for space-based services for operational, technology demonstration and scientific purposes. These mission concepts will address the need for Canadian instruments on foreign as well as Canadian spacecrafts. Implementation approaches to meet users needs will be studied, notably the use of micro and small satellite platforms. In order to meet user needs in the most cost-efficient way, the CSA will develop a business case for the implementation of a Microsat Program.

2.2.1 SDIS – Sub-Programs and Sub-Sub-Programs

1.1.1 Sub-Program - Earth Orbit Satellite Missions and Technology: This Sub-Program encompasses the development of complete Canadian satellite systems or of sub-systems, payloads, instruments or other components provided to domestic and foreign satellites. This Sub-Program also includes the development of advanced technologies that could shape or determine the nature of potential new Earth orbit satellite missions. This Sub-Program is necessary because Government of Canada (GoC) organizations use satellite-generated data, information and services to deliver their mandate; and so, do academia to perform their research. This Sub-Program is delivered in collaboration with GoC organizations, along with the participation of Canadian industry, academia and foreign space agencies. This collaborative effort is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.

Sub-Program Expected Results	Performance Indicators	Targets
R-1. GoC organizations are using space-based data to deliver their mandate.	Ind-1. Number of GoC's programs using space data or services to deliver their mandate. Ind-2. Percentage of RADARSAT data used in program's delivery.	T-1. Benchmark to be established. T-2. Benchmark to be established.
R-2. Academia is using space data or services to conduct their research.	Ind-1. Number of research projects using space data or services.	T-1. SOAR: 100 SESS: 35

SOAR: Science and Operational Applications Research for RADARSAT-2
SESS: Sun-Earth System Science

1.1.1.1 Sub-Sub-Program – Earth Observation Missions: This Sub-Sub-Program encompasses the definition, design, technology development, and implementation of Earth orbit satellites dedicated to producing data, information or imagery of Earth and its atmosphere, ranging from its subsurface to its upper atmospheric layers, including space surveillance for asteroids, earth orbiting objects and space debris. This Sub-Sub-Program serves continuous operations and is necessary to produce pertinent Earth Observation data and imagery that assist with the mandate delivery of Government of Canada (GoC) organizations that deal especially with key national priorities, such as environment, climate change, weather, natural resources, sovereignty, defence, safety and security. It also provides academia with data required for its research. This Sub-Sub-Program is delivered in collaboration with GoC organizations, along with the participation of Canadian industry, academia and foreign space agencies. This collaborative effort is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.

Sub-Sub-Program Expected Result	Performance Indicators	Targets
R-1. Earth Observation (EO) missions provide GoC organizations and academia with data and information.	Ind-1. Number of GoC programs provided with data and images from EO missions.	T-1. Benchmark to be established.
	Ind-2. Number of academia provided with data and images from EO missions.	T-2. 15
	Ind-3. Number of users of EO data.	T-3. 300

1.1.1.2 Sub-Sub-Program – Communications Missions: This Sub-Sub-Program encompasses the definition, design, technology development, and implementation of Earth orbit satellites dedicated to delivering continuous communications, including Navigation, Positioning and Timing (NPT) services. This Sub-Sub-Program serves continuous operations and is necessary to provide pertinent communications and NPT services that assist Government of Canada (GoC) organizations in the delivery of their mandate, particularly those locating and monitoring vehicle or ship signals, those dealing with remote communities or those managing other key national priorities, such as sovereignty, defence, safety and security. This Sub-Sub-Program is delivered in collaboration with GoC organizations, along with the participation of Canadian industry, academia and foreign space agencies. This collaborative effort is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.

Sub-Sub-Program Expected Result	Performance Indicators	Targets
R-1. Satellites provide communications services that respond to the expressed needs of GoC organizations.	Ind-1. Number of Satellite Communication missions/instruments in operation.	T-1. 3
	Ind-2. Number of GoC organizations requesting data from Satellite Communication missions.	T-2. 1

1.1.1.3 Sub-Sub-Program – Scientific Missions: This Sub-Sub-Program encompasses the definition, design, technology development, and implementation of Earth orbit satellites dedicated to producing scientific data and information for research performed by Government of Canada (GoC) organizations or academia. Examples of this research are those pertaining to climate processes and space weather (solar winds and their interaction with the Earth's magnetic field). This Sub-Sub-Program is necessary to produce pertinent scientific data and information that allow GoC organizations to mitigate damage or avoid the disabling of critical ground and space infrastructure, such as pipelines, electricity networks and satellites that can sustain damage from the effects of solar winds. In addition, with their enhanced understanding of climate processes and the improved models made possible through this Sub-Sub-Program, GoC organizations are better able to provide weather and climate forecasting. Academia also uses the data and information produced through this Sub-Sub-Program to perform its own research. This Sub-Sub-Program is delivered in collaboration with GoC organizations, along with the participation of Canadian industry, academia and foreign space agencies. This collaborative effort is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.

Sub-Sub-Program Expected Result	Performance Indicators	Targets
R-1. Sun-Earth System scientific space missions reflect GoC organizations and academia priorities.	Ind-1. Number of Sun-Earth System missions/instruments in operation. Ind-2. Number of Canadian and international partners participating in CSA's Sun-Earth System science missions.	T-1. 25 T-2. 130

1.1.2 Sub-Program – Ground Infrastructure: This Sub-Program includes the development, installation and use of an integrated and coordinated national system of ground infrastructure to receive data from domestic or foreign satellites. In addition, the ground infrastructure houses and uses the equipment required for satellite operations. This Sub-Program is necessary to operate satellites as well as to process and make available space-based data received by the Canadian Space Agency to assist Government of Canada (GoC) organizations in delivering their mandate. Finally, this Sub-Program capitalizes on Canada's geographical advantage by capturing space data from the increasing number of satellites flying over the Arctic and by installing ground stations in this strategic location. This Sub-Program is delivered with the participation of industry, GoC organizations and foreign space agencies. This collaborative effort is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.

Sub-Program Expected Results	Performance Indicators	Targets
R-1. Expressed Canadian and foreign data needs are fulfilled by ground infrastructure.	Ind-1. Percentage of acquisitions request fulfilled. Ind-2. Ratio of acquisitions request fulfilled to missions acquisition requirements.	T-1. 80% T-2. RDSAT-1 70% RDSAT-2 60% SCISAT 80%
R-2. National ground infrastructure is reliable.	Ind-1. Percentage of successful satellites contacts.	T-1. 80%

1.1.2.1 Sub-Sub-Program – Satellite Operations: This Sub-Sub-Program encompasses the Telemetry, Tracking and Command (TT&C) of Canadian satellites or of foreign satellites when such services are required from Canadian stations. It also includes the development, installation and use of ground infrastructure that processes the data and operates satellites. This Sub-Sub-Program is necessary to render orbiting satellites functional. The operations of Canadian Space Agency (CSA) satellites are mostly conducted with CSA equipment located in Canada. In some instances, formal arrangements can be concluded between CSA, Canadian industry, Government of Canada (GoC) organizations or international partners to operate one party's satellites using another party's equipment. Those arrangements can also provide for the location of one party's equipment in another party's facilities.

Sub-Sub-Program Expected Results	Performance Indicators	Targets
R-1. CSA's satellites are functioning as per operational requirements.	Ind-1. Percentage of system availability. Ind-2. Number of Canadian satellites operated by CSA.	T-1. 80% T-2. 3 RDSAT-1, SCISAT, NEOSSAT.
R-2. Foreign Satellite Missions are supported.	Ind-1. Number of foreign satellites supported.	T-1. 2

1.1.2.2 Sub-Sub-Program – Data Handling: This Sub-Sub-Program includes a coordinated national approach to determine optimal station locations and space data handling. This Sub-Sub-Program is necessary for the planning and tasking of data acquisition, as well as the capture, calibration, cataloguing, archiving and availability of space data received from domestic or foreign satellites to assist Government of Canada (GoC) organizations in delivering their mandate. Data handling operations are mostly conducted with Canadian Space Agency (CSA) equipment, located in its ground facilities. In some instances, formal arrangements can be concluded between CSA, GoC organizations or international partners to use another party's equipment located within its facilities. This Sub-Sub-Program is delivered with the participation of Canadian industry, foreign space agencies and GoC organizations. This collaborative effort is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.

Sub-Sub-Program Expected Result	Performance Indicators	Targets
R-1. Satellite data provided to GoC organizations and academia.	Ind-1. Number of RADARSAT-1 images delivered to GoC organizations and other customers.	T-1. 12,000 minutes
	Ind-2. Number of RADARSAT-2 images delivered to GoC organizations and other customers.	T-2. 25,000 images delivered
	Ind-3. Number of SCISAT observations delivered to GoC organizations and other customers.	T-3. 12,000 observations

1.1.3 Sub-Program – Space Data, Imagery and Services Utilization Development: This Sub-Program develops utilization of space-based data, imagery and information, and of communications services available on space assets for the benefit of the user community, primarily Government of Canada (GoC) organizations and academia. This Sub-Program is necessary to foster the development of a Canadian value-added industry that turns space data and information into readily useable products, as well as to increase the ability of GoC organizations to use space-based solutions (data, information and services) for the delivery of their mandate and to increase the ability of academia to perform their research. This Sub-Program engages the participation of the Canadian space industry and academia and is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.

Sub-Program Expected Results	Performance Indicators	Targets
R-1. GoC organizations are using space-based solutions to deliver their mandate.	Ind-1. Number of GoC's programs using developed applications. Ind-2. Average number of programs using each developed applications.	T-1 & T-2. Benchmark to be established.
R-2. The Canadian scientific community use space-based data to conduct their research.	Ind-1. Number of peer-reviewed papers related to data utilization produced in academia and R&D community in Canada.	T-1. SOAR: 5 SESS: 200

1.1.3.1 Sub-Sub-Program – Earth Observation Data and Imagery Utilization: This Sub-Sub-Program develops the utilization of Earth observation (EO) imagery and atmospheric data acquired from Canadian and foreign space assets, ranging from its sub-surface to its upper atmospheric layers. This also applies to weather and climate imagery. This Sub-Sub-Program is necessary to broaden the applicability of currently available Earth observation space products and services (optimization) or to create new ones (innovation) for the user community (Government of Canada (GoC) organizations and academia). This Sub-Sub-Program engages the participation of the Canadian space industry and academia and is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.

Sub-Sub-Program Expected Results	Performance Indicators	Targets
R-1. Enhanced GoC organizations ability to turn space data into products and services.	Ind-1. Number of EO data utilization activities supported.	T-1. GRIP: 15
R-2. Canadian industry ability to turn space data into products and services.	Ind-1. Number of EO data utilization activities supported.	T-1. EOADP: 25
R-3. The scientific community produces new ideas to turn space data into products and services.	Ind-1. Number of EO data utilization activities supported.	T-1. SOAR: 100

GRIP: Government Related Initiatives Program
EOADP: Earth Observation Application Development Program

1.1.3.2 Sub-Sub-Program – Communications Services Utilization: This Sub-Sub-Program develops the utilization of space communications, including Navigation, Positioning and Timing (NPT) services available through Canadian and foreign satellites. This Sub-Sub-Program is necessary to broaden the applicability of currently available communications services (optimization) or to create new ones (innovation) for Government of Canada (GoC) organizations. This Sub-Sub-Program engages the participation of the Canadian space industry and is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.

Sub-Sub-Program Expected Result	Performance Indicator	Target
R-1. Enhanced GoC organizations ability to use communications space assets.	Ind-1. Number of communications application development activities supported.	T-1. 4

1.1.3.3 Sub-Sub-Program – Scientific Data Utilization: This Sub-Sub-Program develops the utilization and validates the quality of Canadian and foreign space-based scientific data and derived information that address science questions, such as those related to our understanding of the Earth's climate system and magnetic field (magnetosphere). This Sub-Sub-Program involves the collaboration of Canadian scientists from Government of Canada (GoC) organizations and academia. This Sub-Sub-Program is necessary to broaden the applicability of currently available space scientific data (optimization) or to create new ones (innovation) for GoC organizations and academia, especially in weather forecasts, climate change and space weather. This Sub-Sub-Program engages the participation of the Canadian space industry, academia and GoC organizations scientists, and is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.

Sub-Sub-Program Expected Result	Performance Indicators	Targets
R-1. Enhanced scientific community ability to use scientific data.	Ind-1. Number of Solar and Earth System scientific operations and research activities supported.	T-1. 35
	Ind-2. Number of Solar and Earth System scientific instruments that are validated and used.	T-2. 27

Planning and Reporting Continuity
RPP 2012-2013 and DPR 2011-2012:
http://www.asc-csa.gc.ca/eng/publications/rp.asp

To learn more about Earth observation, go to:
http://www.asc-csa.gc.ca/eng/satellites/default.asp

To learn more about satellite communications, go to:
http://www.asc-csa.gc.ca/eng/satellites/default.asp

Space Exploration (SE)

Description: This Program provides valuable Canadian science, signature technologies and qualified astronauts to international space exploration endeavours. This Program contributes to the Government of Canada's Science and Technology Strategy. It fosters the generation of knowledge as well as technological spin-offs that contribute to a higher quality of life for Canadians. It generates excitement within the population in general and contributes to nation-building. This Program appeals to the science and technology communities. It is targeted mostly towards Canadian academia and international space exploration partnerships. Canadian industry also benefits from the work generated within this Program. This Program is delivered with the participation of foreign space agencies and Government of Canada (GoC) organizations. This collaborative effort is formalized under international partnership agreements, contracts, grants or contributions.

Financial Resources ($ in millions)

Total Budgetary Expenditures (Main Estimates) 2013–14	Planned Spending 2013–14	Planned Spending 2014–15	Planned Spending 2015–16
95.4	95.4	91.5	112.8

Human Resources (Full-Time Equivalents—FTEs)

2013–14	2014–15	2015–16
186	181	180

Note: Students are now included in the FTE calculation.

1.2 SE Program Expected Results	Performance Indicators	Targets
R-1.Expansion of scientific knowledge acquired through space exploration endeavours.	Ind-1.Number of peer-reviewed scientific publications, reports and conference proceedings based on space exploration data produced by researchers (sciences and technologies) in Canada.	T-1. 75
R-2. Multiple use and applications of knowledge and know-how acquired through space exploration endeavours.	Ind-1.Number of terrestrial applications of knowledge and know-how acquired through space exploration endeavours. Ind-2. Number of space re-utilization of knowledge and know-how acquired through space exploration endeavours.	T-1. 3 T-2. 1

SUMMARY OF PLANNING HIGHLIGHTS FOR SPACE EXPLORATION

- The Canadian Space Agency (CSA) will continue to fulfill its International Space Station (ISS) obligations by operating the Mobile Servicing System (MSS); maintaining and providing technical support; providing MSS–related training and qualification for astronauts, cosmonauts and ground support personnel; developing new flight products and procedures to support planned MSS operations; and initiating the procurement of new MSS cameras to replace the existing cameras which are failing and obsolete. The CSA, along with its ISS partners, will continue the assessment of how to extend the operating life of the MSS to 2020.

- The CSA will negotiate an agreement with the National Acronautics and Space Administration (NASA) on providing technologies and services that will offset Canada's share of the ISS Common System Operation Costs to 2020 with the aim of leveraging this obligation to prepare Canada for future space exploration cooperation.

- Canadian astronaut Chris Hadfield will complete his five-month stay on the ISS in May 2013 becoming the first Canadian to command a spacecraft and its crew. As part of his activity, he will utilize the portable Microflow1 instrument designed to perform affordable real-time bio-diagnostics and bio-analysis for medical care that can also be utilised for medical applications in isolated communities on Earth. The CSA will focus its utilisation of the ISS in life sciences related to human health.

- The CSA launched the Near Earth Object Surveillance Satellite (NEOSSat) in February 2013. The NEOSSat is a microsatellite jointly sponsored by CSA and Defense Research and Development Canada (DRDC) to acquire data on Near Earth asteroids and Earth orbiting objects. Through NEOSSat, Canada is contributing to the international effort to catalogue the near-Earth population of asteroids and to maintain the safety of Canadian and international space assets.

- The CSA will also continue the development of its contribution to the United States James Webb Space Telescope (JWST) and to Japan ASTRO-H space telescope. The CSA will maintain a strong support to the scientific operation of existing space telescopes such as MOST (Microvariability and Oscillations of Stars) and Herschel Planck.

- The CSA will continue to support the operation of the Alpha Particle X-Ray Spectrometer (APXS) on the Mars rover Curiosity. This NASA rover is the largest ever sent to Mars and has already started to make key discoveries. The CSA will also continue the design of the Light Detection and Ranging (LIDAR) system for the NASA asteroid mission OSIRIS-Rex (Origins Spectral Interpretation Resource Identification Security Regolith Explorer) and will follow the European Space Agency's ExoMars mission to which Canada contribute.

- In line with the Canadian Space Exploration Plan the CSA aims at preparing Canadian industry and research organisations for future exploration missions by advancing the readiness of various technologies as well as scientific, medical and operational procedures. The CSA will continue the development of concepts for planetary, space astronomy and space robotic servicing missions. The CSA will deploy the terrestrial prototypes of the rovers, payloads and next generation Canadarm testbed that were delivered as part of Canada's Economic Action Plan. The CSA will continue to develop medical concepts of operations as well as medical technologies and procedures for human spaceflight.

2.2.2 SE – Sub-Programs and Sub-Sub-Programs

1.2.1 Sub-Program – International Space Station (ISS): This Sub-Program uses the International Space Station (ISS) – a unique Earth orbiting laboratory – to learn, to live and work in space while conducting scientific, medical and engineering studies. It includes the assembly and maintenance of the ISS through the use of the Canadian Mobile Servicing System (MSS) and the design, development and operations of payloads and technological demonstrations aboard the ISS. This Sub-Program is necessary to generate specific understanding and technological advances to prepare for the challenges of space exploration and for terrestrial benefits. This Sub-Program provides Canadian industry and academia privileged access to the ISS. This Sub-Program is performed in collaboration with Government of Canada (GoC) organizations and foreign space agencies. This collaborative effort is captured under contracts, contributions, grants and/or international partnership agreements.

Sub-Program Expected Results	Performance Indicators	Targets
R-1. Development of operational and technological know-how related to long-duration space missions (with potential Earth application) acquired through participation in the ISS operations and laboratory missions.	Ind-1. Number of Canadian missions/solutions/instruments flown on ISS.	T-1. 10
	Ind-2. Percentage of Canadian missions/solutions/instruments flown on ISS that met their mission requirements.	T-2. 100%
R-2. Canada, a well-positioned partner, influences the ISS program direction.	Ind-1. Number of CSA's participation in ISS program boards and panels.	T-1. 67

1.2.1.1 Sub-Sub-Program – International Space Station Assembly and Maintenance Operations: This Sub-Sub-Program includes the provision and operation of the Canadian Mobile Servicing System (MSS), composed of three Canadian robots – Canadarm2, Dextre and the Mobile Base System. MSS operations and maintenance services are conducted by Canadian or foreign astronauts on board the International Space Station (ISS) and by ground controllers and engineers located in established facilities at the Canadian Space Agency (CSA) and the National Aeronautics and Space Administration (NASA) – Johnson Space Center. This Sub-Sub-Program also includes the provision of specialized MSS training, systems engineering and software services, flight procedures development as well as the facility infrastructure necessary to operate the MSS through its life cycle. This Sub-Sub-Program is necessary to fulfill Canada's ongoing commitment to the international partnership to assemble and maintain the ISS, a legally binding obligation under the Canadian *Civil International Space Station Agreement Implementation Act.*

Sub-Sub-Program Expected Result	Performance Indicator	Target
R-1. The Canadian contribution (Mobile Services System) meets the planned operational requirements identified in the ISS Increment Definition Requirements Document (IDRD) in accordance with the Intergovernmental Agreement (IGA) and the NASA/CSA MOU.	Ind-1. Percentage of operational requirements fulfilled.	T-1. 100%

1.2.1.2 Sub-Sub-Program – International Space Station Utilization: This Sub-Sub-Program encompasses the implementation of scientific, operational, medical and technological studies in specific areas, such as life sciences, radiation, material or fluid sciences, to be conducted aboard the International Space Station (ISS) by Government of Canada (GoC) organizations, academia or the private sector. This ISS offers them the advantages of an orbiting platform with human presence and prolonged microgravity exposure. This Sub-Sub-Program is necessary for testing novel technologies and conducting scientific studies in the unique environment of the ISS, leading to a better understanding of long-duration space missions and to potential terrestrial benefits. This Sub-Sub-Program is performed in collaboration with GoC organizations and foreign space agencies. This collaborative effort is captured under contracts, contributions, grants and/or international partnership agreements.

Sub-Sub-Program Expected Result	Performance Indicators	Targets
R-1. Optimal utilization of the ISS.	Ind-1. Percentage of programmatic objectives achieved through ISS utilization.	T-1. 100%
	Ind-2. Number of Canadian stakeholders involved in activities on the ISS.	T-2. 4
	Ind-3. Proportion of ISS resources used.	T-3. 50%

1.2.2 Sub-Program – Exploration Missions and Technology: This Sub-Program encompasses the development and use of astronomy and planetary missions as well as the development of advanced exploration technologies. This Sub-Program is necessary as it contributes valued Canadian signature technologies to international space exploration endeavours and generates a better understanding of the universe, the solar system and our home planet. It could also lead to technology transfers for terrestrial benefits. This Sub-Program provides Canadian industry and academia with unique opportunities through their participation in international space exploration initiatives. This Sub-Program is performed in collaboration with foreign space agencies, Government of Canada (GoC) organizations and through CSA participation in international groups, such as the International Space Exploration Coordination Group. This collaborative effort takes shape under contracts, grants, contributions and/or international partnership agreements.

Sub-Program Expected Results	Performance Indicators	Targets
R-1. Technological know-how acquired through Space Exploration endeavours (Astronomy and Planetary).	Ind-1. Proportion of CSA's missions/solutions/instruments that met their mission performance requirements at acceptance review and/or at commissioning.	T-1. 0
R-2. Canada maintains a strategic positioning which supports its capacity to influence space exploration missions and decision making process in key international space exploration forums.	Ind-1. Number of CSA's sponsored Highly Qualified Personnel (HQP) nominated on International Space Exploration decision bodies.	T-1. 8
R-3. CSA's participation in space exploration missions provides access to scientific data about the Solar system and the Universe.	Ind-1. Number of CSA's sponsored astronomy and planetary missions' providing data to Canadian scientific community.	T-1. 3

1.2.2.1 Sub-Sub-Program – Space Astronomy Missions: This Sub-Sub-Program encompasses the definition, design, technology development, implementation and use of Canadian scientific instruments and signature technologies made available to Canadian and international space astronomy missions. This Sub-Sub-Program is necessary to perform space astronomy investigations and generate data and new knowledge about the universe. This Sub-Sub-Program is performed in collaboration with foreign space agencies, Government of Canada (GoC) organizations and through consultations with the Canadian astronomical community. This collaborative effort takes shape under contracts, grants, contributions and/or international partnership agreements.

Sub-Sub-Program Expected Result	Performance Indicator	Target
R-1. Canadian know-how and expertise allow Canada to lead or participate in international space astronomy missions.	Ind-1. Number of technological and scientific solutions being developed by the CSA in the context of astronomy missions.	T-1. 2

1.2.2.2 Sub-Sub-Program – Planetary Missions: This Sub-Sub-Program encompasses the definition, design, technology development, implementation and use of Canadian scientific instruments and signature technologies made available to international exploration missions. The Sub-Sub-Program is necessary to reach exploration destinations such as planets and asteroids or new exploration platforms to conduct planetary science investigations, to generate data and new knowledge and to conduct engineering and/or planetary resource management activities. This Sub-Sub-Program is performed in collaboration with the international space exploration community, Government of Canada (GoC) organizations and foreign space agencies. This collaborative effort takes shape under contracts, grants, contributions and/or international partnership agreements.

Sub-Sub-Program Expected Result	Performance Indicator	Target
R-1. Canadian know-how and expertise allow Canada to participate in planetary exploration missions.	Ind-1. Number of technological and scientific solutions being developed by the CSA in the context of planetary missions.	T-1. 1

1.2.2.3 Sub-Sub-Program – Advanced Exploration Technology Development: This Sub-Sub-Program includes the development of advanced Canadian signature technologies to be used in potential astronomy and planetary missions that could be destined for the Moon, Mars, asteroids or other celestial bodies. This Sub-Sub-Program is necessary to shape or determine the nature of Canada's contribution to potential international exploration and astronomy missions and could lead to spin-offs. In addition, the Sub-Sub-Program includes terrestrial deployments in analogue sites that offer geological similarities with Martian or Lunar surfaces, where this technology and its operational aspects are being tested and where exploration-related science is conducted for proof of concepts. This Sub-Sub-Program is performed in collaboration with foreign space agencies and Government of Canada (GoC) organizations and through the Canadian Space Agency participation in international groups, such as the International Space Exploration Coordination Group. This collaborative effort takes shape under contracts and/or international partnership agreements.

Sub-Sub-Program Expected Result	Performance Indicator	Target
R-1. Maturing science, technology and operational solutions for planning and strategic positioning purposes.	Ind-1. Number of science, technology and operational solutions that are under development in conformity with the orientations and conclusions of the Canadian Space Exploration strategic plan.	T-1. 12

1.2.3 Sub-Program – Human Space Missions and Support: This Sub-Program encompasses all activities required to recruit, develop, train and maintain a healthy and highly-qualified Canadian astronaut corps capable of participating in space exploration missions. It also includes all activities directed at mitigating health risks associated with those missions, such as the development of advanced technologies to be used in support of human space missions. This Sub-Program is necessary to generate specialized knowledge in fields that sustain human space flights, such as life sciences and space medicine. Furthermore, by exploring technological solutions to the various challenges of human space flight, this Sub-Program could contribute to alternate healthcare delivery mechanisms for terrestrial applications. This Sub-Program is performed with Government of Canada (GoC) organizations and foreign space agencies. This collaborative effort is formalized under contracts, grants, contributions or international partnership agreements.

Sub-Program Expected Result	Performance Indicator	Target
R-1. Human space flight generates "unique" health and life sciences knowledge, and technological know-how to sustain life and mitigate health risk during long-duration space flight.	Ind-1. Number of activities that lead to health risk mitigation strategies, technologies and/or countermeasures.	T-1. 6

1.2.3.1 Sub-Sub-Program – Astronaut Training and Missions: This Sub-Sub-Program encompasses activities associated with all phases of an astronaut career from recruitment to retirement, including space missions. This Sub-Sub-Program includes the management of National Astronaut Recruitment Campaigns; the implementation of individualized astronaut career management plan; the implementation of basic, advanced and mission-specific training; collateral duties assignment; space mission negotiations and assignment; as well as all the logistical, administrative and operational support activities in the pre-flight, in-flight and post-flight periods. This Sub-Sub-Program is necessary to live and work in a space environment and in order to further our understanding of human behaviour and health in space, and to conduct experiments and collect space-based scientific data useful to the science community. This Sub-Sub-Program is performed with Government of Canada (GoC) organizations and foreign space agencies. This collaborative effort is formalized under contracts or international partnership agreements.

Sub-Sub-Program Expected Result	Performance Indicator	Target
R-1.Canadian astronauts Corps is ready to assume any responsibilities on an expedition to the International Space Station (ISS).	Ind-1. Number of astronaut activities undertaken in preparation for eventual ISS missions' assignments.	T-1. 4

1.2.3.2 Sub-Sub-Program – Operational Space Medicine: This Sub-Sub-Program delivers operational and clinical healthcare activities during all phases of basic, advanced and mission-specific training as well as during the pre-flight, in-flight and post-flight periods. It also promotes and ensures the physical, mental, social well-being and safety of Canadian astronauts. This Sub-Sub-Program is necessary to ascertain the overall health of Canadian astronauts and to monitor long-term health status. This Sub-Sub-Program is performed with Government of Canada (GoC) organizations and foreign space agencies. This collaborative effort is formalized under contracts, grants, contributions or international partnership agreements.

Sub-Sub-Program Expected Results	Performance Indicators	Targets
R-1. Astronauts' health is optimized to meet mission requirements.	Ind-1. Number of active astronauts medically certified for ISS assignment and duties.	T-1. 3
R-2. Astronauts' long-term health is monitored following their active careers.	Ind-1. Percentage of eligible astronauts participating in their long-term health monitored.	T-2. 14%

1.2.3.3 Sub-Sub-Program – Health and Life Sciences: This Sub-Sub-Program encompasses space medicine and life sciences activities that explore health care delivery and life sustainability solutions on future long-duration exploration missions. These benefits are targeted at the space exploration community, mainly academia and partnering agencies. This Sub-Sub-Program develops collaborative projects with academia and industry. It uses analog sites that offer relevant similarities with the harsh environment of space, and where exploration-related medical and life science studies are conducted. This Sub-Sub-Program is necessary to identify, understand, mitigate or eliminate health risks associated with human space flights, and to understand and address the needs of humans during those missions. The solutions could also be offered as alternative healthcare delivery mechanisms for terrestrial benefits through the transfer of space technology. This Sub-Sub-Program is performed with Government of Canada (GoC) organizations and foreign space agencies. This collaborative effort is formalized under contracts, grants, contributions or international partnership agreements.

Sub-Sub-Program Expected Result	Performance Indicators	Targets
R-1. Performance of space life sciences studies with potential benefits for Canadians and to enable human exploration of space.	Ind-1. Number of studies aiming at the development of countermeasures and enhanced human performance and life support. Ind-2. Number of partnerships addressing potential terrestrial healthcare solutions.	T-1. 4 T-2. 1

Planning and Reporting Continuity
RPP 2012-2013 and DPR 2011-2012:
http://www.asc-csa.gc.ca/eng/publications/rp.asp

To learn more about space science and exploration, go to:
http://www.asc-csa.gc.ca/eng/sciences/default.asp and,
http://www.asc-csa.gc.ca/eng/exploration/default.asp

Future Canadian Space Capacity (FCSC)

Description: This Program attracts, sustains and enhances the nation's critical mass of Canadian space specialists, fosters Canadian space innovation and know-how, and preserves the nation's space-related facilities capability. In doing so, it encourages private-public collaboration that requires a concerted approach to future space missions. This Program secures the nation's strategic and ongoing presence in space in the future and to preserve Canada's capability to deliver internationally renowned space assets for future generations. It is targeted at Canadian academia, industry and youth, as well as users of Canadian space solutions (Government of Canada (GoC) organizations) and international partners. This Program is conducted with the participation of funding agencies, GoC organizations along with government facilities and infrastructure, foreign space agencies, not-for-profit organizations and provincial governments. This collaborative effort is formalized under contracts, grants, contributions or national and international partnership agreements.

Financial Resources ($ in millions)

Total Budgetary Expenditures (Main Estimates) 2013–14	Planned Spending 2013–14	Planned Spending 2014–15	Planned Spending 2015–16
58.5	58.5	60.8	61.5

Human Resources (Full-Time Equivalents—FTEs)

2013–14	2014–15	2015–16
108	99	100

Note: Students are now included in the FTE calculation.

1.3 FCSC Program Expected Result	Performance Indicators	Targets
R-1. Canada holds a space community (academia, industry and government) able to contribute to the sustained and strategic Canadian use of space.	Ind-1. Number of FTE in the Canadian space sector.	T-1 3,500
	Ind-2. Monetary value of the Canadian space sector R&D investments.	T-2 $60 million
	Ind-3. Degree of match between workforce supplied and industry workforce requirements.	T-3. Benchmark to be established.

SUMMARY OF PLANNING HIGHLIGHTS FOR FUTURE CANADIAN SPACE CAPACITY

- The Canadian Space Agency (CSA) will finalize the installation of a new stratospheric balloon launch base in Timmins, Ontario. This investment will provide access to frequent flight opportunities on stratospheric balloons to be launched not only from Canada but also from bases located worldwide, thanks to a new collaborative agreement signed between the CSA and the French Space Agency (CNES–*Centre national d'études spatiales*). Such 'low cost' flight opportunities will, in turn, provide a unique platform to perform atmospheric and space sciences as well as for the qualification of new space technologies and for the training of Canada's next generation of scientists and engineers. The qualification flights from the Timmins launch facility are planned for mid-2013.

- A pilot program will be established to provide to academe training programs access to CSA ground installations and laboratories. The intent is to ensure that unique space-related ground assets are made available to undergraduate and graduate training in research and development to encourage the acquisition of space mission-relevant knowledge, skill sets and experience by students.

- Through the participation in European Space Agency (ESA) programs, the CSA will continue to support Canadian companies' involvement in the development of European Earth Observation advanced space-borne instruments and sub-systems, user-oriented applications. It will ensure Canadian access to ESA space data as well as position Canadian industry and scientists in future European space scientific and technological developments related to planetary exploration and life and physical science programs. Through participation to the ESA Advanced Research in Telecommunications Systems (ARTES) Program, the CSA will also allow Canadian industry to develop new satellite technologies, equipments and applications focussing on the area of satellite based Automatic Identification System (AIS).

- The CSA will continue to support Canadian companies to improve their responsiveness to future market demands and their maintenance of global competitiveness in the area of spacecraft platforms. The work covered by these funding agreements could range from developing novel concepts and /or products and services to improving industrial processes related to spacecraft platforms.

- The David Florida Laboratory (DFL) will continue to provide world-class and cost-effective environmental space qualification services for the assembly, integration and testing of spacecraft systems to CSA's programs, as well as national and international clients. Significant infrastructure modifications and equipment update will commence in 2013 to address requirements foreseen for 2014 for the CSA's RADARSAT Constellation Mission.

2.2.3 FCSC – Sub-Programs and Sub-Sub-Programs

1.3.1 Sub-Program – Space Expertise and Proficiency: This Sub-Program includes the development and enhancement of Canada's space capacity. This Sub-Program supports research in private or public organizations and sustains the development of Highly Qualified Personnel (HQP) in science and engineering. We encourage scientifics and engineers to perform relevant development activities in space science and technology, and to develop their know-how by offering them financial support to sustain their research project and access to infrastructure devoted to world class research and training, among which fast execution and small size missions offer frequent flight opportunity. This Sub-Program is necessary to create and sustain a pool of space expertise and proficiency that will form the next generation of space professionals and workers and to provide solutions for future Canadian space endeavours. This Sub-Program is delivered with the participation of funding agencies, Government of Canada (GoC) organizations, foreign space agencies and not-for-profit organizations. This collaborative effort is formalized under grants, contributions or national and international partnership.

Sub-Program Expected Results	Performance Indicators	Targets
R-1. A pool of space experts and professionals is sustained and enhanced.	Ind-1. Number of scientists and engineers involved through opportunities provided by the program.	T-1. Benchmark to be established.
R-2. Research is conducted in priority areas.	Ind-1. Number of research projects conducted through opportunities provided by the program.	T-1. Benchmark to be established.
R-3. Advancement of S&T solutions for future space initiative.	Ind-1. Number of peer-reviewed papers, reports and conference proceedings acknowledging CSA support.	T-1. Benchmark to be established.

1.3.2 Sub-Program – Space Innovation and Market Access: This Sub-Program includes the development and enhancement of Canada's space capacity through innovation and market positioning. Through leading-edge technology and facilities, and international arrangements, the Sub-Program improves Canadian industrial competitiveness so that space users are continuously well served through constantly improving optimal and cost-effective space solutions. This Sub-Program is necessary to foster entrepreneurship that enhances Canadian industry's international positioning on commercial and government markets. This Sub-Program is performed with industry and is formalized under contracts or contributions. Foreign space agencies are partners in this endeavour, so that Canadian industry can access foreign markets through innovation or international arrangements.

Sub-Program Expected Results	Performance Indicators	Targets
R-1. Through innovation and international arrangements, Canadian industry is well positioned on international commercial and government markets.	Ind-1. Number of Canadian companies exporting space-related goods and services. Ind-2. Value of Canadian space-related goods and services exported.	T-1. 50 T-2. $1.7 billions

R-2. Enhanced Canadian industry competitiveness.	Ind-1. Number of Canadian companies successfully obtaining national/international work orders.	T-1. 100

1.3.2.1 Sub-Sub-Program – International Market Access: This Sub-Sub-Program consists in facilitating foreign market access by the Canadian space industry through negotiating, implementing and managing special international arrangements. For example, in return for Canadian Space Agency (CSA) monetary contributions to the European Space Agency (ESA) under the long-lasting ESA-Canada Agreement, Canadian industry obtains some of the contracts awarded by ESA; thus penetrating a market that would otherwise be limited to Europeans. This Sub-Sub-Program is necessary as it results in increased access to foreign government market share for Canadian industry. This Sub-Sub-Program is delivered through concluding international agreements, trade measures, or other mutually beneficial arrangements that create a favourable political or trade environment that facilitates access to global markets.

Sub-Sub-Program Expected Results	Performance Indicators	Targets
R-1.Canadian investments through the ESA Agreement allow Canadian industry to access the institutional European market.	Ind-1. Canadian industrial return coefficient (Ratio between the actual value of contracts awarded by ESA to Canadian organizations and the ideal value of contracts awarded by ESA to Canadian organizations).	T-1. 96% or higher
R-2. The Canadian industry has access to flight opportunities for its space technologies/components.	Ind-1. Number of technologies or components developed by Canadian industry which have been space qualified and/or have acquired flight heritage through Canada's participation in ESA programs.	T-1. 5 opportunities over the duration of the agreement (2012-2019)

1.3.2.2 Sub-Sub-Program – Enabling Technology Development: This Sub-Sub-Program consists of technology development and demonstration activities that contribute to maintaining or developing a technological edge in promising fields, such as switches, batteries, launchers, antennas, solar panels, etc. This Sub-Sub-Program is necessary as the enabling (generic) technology developed reduces costs and technological risks on multiple mission types, enhances the efficiency or performance of already established space solutions, and facilitates the commercialization of new products through innovation. This Sub-Sub-Program is performed with industry and is formalized under contracts or contributions.

Sub-Sub-Program Expected Result	Performance Indicator	Target
R-1. Increased technological capability of Canadian industry.	Ind-1. Number of different technologies addressed.	T-1. 40

1.3.3 Sub-Program – Qualifying and Testing Services: This Sub-Program consists of specialized activities and services for the assembly, integration, and testing of space hardware and involves space qualifying technology, sub-units, units or entire spacecraft developed by Canadian academic institutions, Government of Canada (GoC) organizations, and industry, as well as international partners and clients. This Sub-Program is necessary to ensure that mission-assigned technology and entire systems can safely and reliably meet the rigors of space and to demonstrate the suitability and effectiveness of new Canadian space technology for providing valuable contributions to space missions. This provides an effective base for increasing Canada's capability to participate in future space programs. This Sub-Program is delivered by the CSA's David Florida Laboratory on a fee-for-service basis.

Sub-Program Expected Result	Performance Indicator	Target
R-1. Test results of space hardware prove to be reliable in demonstrating suitability for launch and space environment.	Ind-1. Percentage of client satisfaction towards the quality of the services provided.	T-1. 95%

Planning and Reporting Continuity
RPP 2012-2013 and DPR 2011-2012:
http://www.asc-csa.gc.ca/eng/publications/rp.asp

To learn more about enabling technology development, go to:
http://www.asc-csa.gc.ca/eng/programs/default.asp

To learn more about qualifying and testing services go to:
http://www.asc-csa.gc.ca/eng/dfl/default.asp

Internal Services

Description: Internal Services are groups of related activities and resources that are administered to support the needs of programs and other corporate obligations of an organization. These groups are: Management and Oversight Services; Communications Services; Legal Services; Human Resources Management Services; Financial Management Services; Information Management Services; Information Technology Services; Real Property Services; Materiel Services; Acquisition Services; and Travel and Other Administrative Services. Internal Services include only those activities and resources that apply across an organization and not to those provided specifically to a program.

Financial Resources ($ in millions)

Total Budgetary Expenditures (Main Estimates) 2013–14	Planned Spending 2013–14	Planned Spending 2014–15	Planned Spending 2015–16
46.0	46.0	44.8	42.1

Human Resources (Full-Time Equivalents—FTEs)

2013–14	2014–15	2015–16
267	261	231

Note: Students are now included in the FTE calculation.

1.4 IS Program Expected Result	Performance Indicator	Target
R-1. Internal Services provide an added value to CSA managers in the performance of their duties.	Ind-1. CSA's rating against MAF criteria based on Round 2012-2013 assessment.	Acceptable ratings are reached or maintained.

SUMMARY OF PLANNING HIGHLIGHTS FOR INTERNAL SERVICES

Continued Improvements of Governance and Management

- The implementation of the CSA reorganization that will optimise business practices.
- The implementation of the renewed CSA's governance and the further development of investment decision-making guidelines.
- The implementation of an Investment Plan in accordance with Treasury Board of Canada Secretariat's (TBS) policies on investment planning, acquired assets and management of projects.
- The update of a Corporate Risk Profile in time to support the 2014-2015 CSA's strategic decision making.
- The development and implementation of recommendations from the Internal Audit on the Project Management Framework; and the development of the Project Management Methodology to standardize project management processes and practices.
- The ongoing implementation of an integrated management approach in order to align the allocation of human, financial and technical resources with operational priorities through corporate work plans.
- The implementation of the 2013-2016 Integrated Corporate Human Resources Plan which will integrate the Employment Equity Action Plan and specific planning for key positions in order to attract and retain a qualified workforce to continue delivering the CSA mandate.
- The implementation of a Space Data Management Framework to ensure an effective life cycle program from creation to disposition.

Ensuring Business Continuity

- The ongoing management of information assets and information systems created by or for the CSA in order to guarantee secured access for decision making in conformity with Canadian regulations and to assure preservation for historical purposes.
- The implementation of the CSA's Departmental Security Plan as required in the Policy on Government Security.
- The development and implementation of the CSA's Strategic Emergency Management Plan as required by the *Emergency Management Act*.

Monitoring Performance

- The ongoing implementation of a five-year Evaluation Plan applicable to the CSA's 2013-2014 Program Alignment Architecture as well as the final development of Performance Measurement Strategies for all programs.
- The ongoing implementation of the three-year (2011-2014) risk-based audit plan.
- The continuous monitoring of management action plans developed in response to audit and evaluation as well as third party recommendations.
- The ongoing assessment of management requirements to allow public access to space data produced by satellites and scientific experiments.
- The ongoing implementation of the CSA Policy on internal control.

Planning and Reporting Continuity
RPP 2012-2013 and DPR 2011-2012:
http://www.asc-csa.gc.ca/eng/publications/rp.asp

SECTION 3: SUPPLEMENTARY INFORMATION

3.1 FINANCIAL HIGHLIGHTS

3.1.1 Future-Oriented Financial Statements

The **Future-Oriented Condensed Statement of Operations and Agency's Net Financial Position** presented in this RPP are intended to provide a general overview of the CSA's financial operations. The Future-Oriented Financial Statements are prepared on an accrual basis to strengthen accountability and improve transparency and financial management.

Information on CSA's Future-Oriented Financial Statements is at the following address: http://www.asc-csa.gc.ca/eng/publications/rp.asp

Future-Oriented
Condensed Statement of Operations and Agency's Net Financial Position
For the Year (Ended March 31)

($ in millions)	$ Change	Planned 2014	Estimated 2013
Total expenses	9	382	373
Total revenues	-	1	1
Net cost of operations before government funding	9	381	372
Agency's net financial position	**111**	**1,315**	**1,204**

The Canadian Space Agency's forecast expenses are projected to be $382 million. These expenses include planned spending presented in this Report on Plans and Priorities and also include expenses such as amortization, services provided without charge by Government of Canada organizations, and severance benefits and vacation pay liability adjustments. This amount excludes investment in tangible capital assets.

Condensed Statement of Financial Position

As at March 31

($ in millions)	$ Change	Planned 2014	Estimated 2013
Total net liabilities	59	165	106
Total net financial assets	48	126	78
Agency's net debt	11	39	28
Total non-financial assets	122	1,354	1,232
Agency's net financial position	**111**	**1,315**	**1,204**

The Canadian Space Agency's forecast assets are projected to be $126 million (net financial assets) and $1,354 million (non-financial assets). The majority of the net financial assets is related to the Due from the Consolidated Revenue Fund to pay down its accounts payable and accrued liabilities (98.7% or $125 million) and the majority of the non-financial assets is related to tangible capital assets (84.8% or $1,149 million). Tangible capital assets are mostly composed of space assets (which represent approximately 25%) and assets under construction (65% or $749 million). RADARSAT Constellation Mission represents 73.6% or $551 million of the assets under construction.

The Canadian Space Agency's forecast net liabilities are projected to be $165 million, the majority of which is related to accounts payable and accrued liabilities (87.2% or $144 millions).

3.1.2 Supplementary Information Tables

All electronic supplementary information tables found in the 2013-2014 Report on Plans and Priorities can be found on the Treasury Board of Canada Secretariat's website at: http://www.tbs-sct.gc.ca/est-pre/estime.asp

Annexe 1: Details on Transfer Payment Programs (TPPs)
Annexe 2: Sources of Respendable and Non-Respendable Revenue
Annexe 3: Status Report on Transformational and Major Crown Projects
Annexe 4: Summary of Capital Spending by Program
Annexe 5: Upcoming Internal Audits and Evaluations over the next three fiscal years

3.1.3 Tax Expenditures and Evaluations Report

The tax system can be used to achieve public policy objectives through the application of special measures such as low tax rates, exemptions, deductions, deferrals and credits. The Department of Finance publishes cost estimates and projections for these measures annually in the *Tax Expenditures and Evaluations*[2] publication. The tax measures presented in the *Tax Expenditures and Evaluations* publication are the sole responsibility of the Minister of Finance.

[2] The *Tax Expenditures and Evaluations* publication is at the following address: http://www.fin.gc.ca/purl/taxexp-eng.asp

SECTION 4: OTHER ITEMS OF INTEREST

4.1 ORGANIZATIONAL CONTACT INFORMATION

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